

What is claimed is:

- 5 1. A DNA chip comprising a solid carrier and oligonucleotide or polynucleotide which is fixed to the carrier in the presence of a hydrophilic polymer.
- 10 2. A DNA chip of claim 1, wherein the oligonucleotide or polynucleotide is fixed to the carrier at its one end portion.
- 15 3. The DNA chip of claim 1, wherein the solid carrier is coated with poly-L-lysine.
- 20 4. The DNA chip of claim 1, wherein the oligonucleotide or polynucleotide has a NH₂ terminal and is fixed to the carrier at its NH₂ terminal.
- 25 5. The DNA chip of claim 3, wherein the oligonucleotide or polynucleotide has a NH₂ terminal and is fixed to the carrier at its NH₂ terminal.
- 30 6. The DNA chip of claim 1, wherein the hydrophilic polymer is selected from the group consisting of poly-(1,4-diazoniabicyclo[2.2.2]octane-1,4-diylmethylene-1,4-phenylenemethylene chloride), polyacrylamide, polyethylene glycol, poly(sodium acrylate), carboxymethylcellulose and albumin.
- 35 7. The DNA chip of claim 1, wherein the oligonucleotide or polynucleotide is known in its base sequence.
8. The DNA chip of claim 1, wherein the oligonucleotide or polynucleotide is a synthetically prepared product.

9. The DNA chip of claim 1, wherein the oligonucleotide or polynucleotide is a cleaved DNA fragment.

5 10. A method of fixing an oligonucleotide or polynucleotide to a solid carrier which comprises spotting an aqueous solution containing the oligonucleotide or polynucleotide and a hydrophilic polymer onto the carrier.

10 11. The method of claim 10, wherein the oligonucleotide or polynucleotide is fixed to a solid carrier at its one end portion.

15 12. The method of claim 10, which further comprises the steps of washing the spotted carrier and drying the washed carrier.

20 25 13. A process for detecting a DNA fragment complementary to oligonucleotide or polynucleotide fixed to a DNA chip comprising the steps of spotting an aqueous solution containing the DNA fragment labelled with a fluorescent moiety on the DNA chip which comprises a solid carrier and oligonucleotide or polynucleotide which is fixed to the carrier in the presence of a hydrophilic polymer, incubating the spotted chip for performing hybridization between the oligonucleotide or polynucleotide and the complementary DNA fragment in the aqueous solution, and detecting the hybridized complementary fragment by fluorometry.

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